

Engine Dashboard



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The Engine Dashboard Plugin displays engine parameters, fluid levels and battery status in OpenCPN. It accepts NMEA 0183 RPM (Revolutions), RSA (Rudder Sensor Angle) and XDR (Transducer Measurement) sentences as its input. For sailors with NMEA2000® engine and tank sensors, any release of the TwoCan plugin later then version 1.6 can convert the appropriate messages from NMEA2000® networks to their NMEA 0183 equivalents which can then be displayed by the Engine Dashboard.

The Engine Dashboard displays the following data:

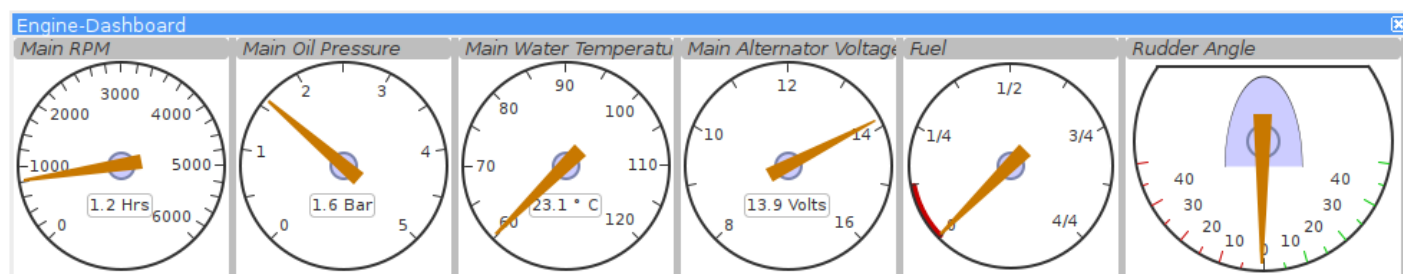
Engine RPM, Oil Pressure, Coolant Temperature, Engine Hours & Alternator Voltage for either single or dual engine vessels.

Fluid levels for Fuel, Water, Oil, Live Well, Grey and Black Waste.

Battery status (voltage and current) for the Start and House batteries.

and Rudder Angle.

It supports both dual and single engine vessels, can display voltage ranges for either 12 or 24 volts DC systems and supports a user configurable maximum RPM range.



The engine dashboard consumes a subset of NMEA 0183 sentences. For engine speed it may use either RPM or XDR sentences. For Rudder Angle it uses RSA sentences. For XDR sentences, it supports three different transducer naming formats:

TwoCan Plugin

Measurement	Transducer	Type	Measurement Unit	Transducer Name ¹
Engine RPM	T	R	RPM	MAIN, PORT or STBD
Oil pressure	P	P	Pascals	MAIN, PORT or STBD
Water Temperature	C	C	Celsius	MAIN, PORT or STBD
Alternator Voltage	U	V	Volts	MAIN, PORT or STBD

Measurement	Transducer	Type	Measurement Unit	Transducer Name ¹
Engine Hours	G	H	Hours ²	MAIN, PORT or STBD
Fluid Levels	V	P	Percent ³	FUEL, H2O, OIL, LIVE, GREY, BLK
Battery Voltage	U	V	Volts	STRT (Start or Main), HOUS (House or Auxilliary)
Battery Current	U	A	Amperes ⁴	STRT (Start or Main), HOUS (House or Auxilliary)

NMEA 0183 v 4.11

Measurement	Transducer	Type	Measurement Unit	Transducer Name ^{1, 5}
Engine RPM	T	R	RPM	ENGINE#0, ENGINE#1
Oil pressure	P	P	Pascals	ENGINEOIL#0, ENGINEOIL#1
Water Temperature	C	C	Celsius	ENGINE#0, ENGINE#1
Alternator Voltage	U	V	Volts	ALTERNATOR#0, ALTERNATOR#1
Engine Hours	G	null	Hours	ENGINE#0, ENGINE#1
Fluid Levels	V	P	Percent	FUEL#0, FRESHWATER#0, OIL#0, LIVEWELLWATER#0, WASTEWATER#0, BLACKWATER#0
Fluid Levels	E	P	Percent	FUEL#0, FRESHWATER#0, OIL#0, LIVEWELLWATER#0, WASTEWATER#0, BLACKWATER#0
Battery Voltage	U	V	Volts	BATTERY#0 (Start), BATTERY#1 (House)
Battery Current	I	A	Amperes	BATTERY#0 (Start), BATTERY#1 (House)

Shipmodul

Measurement	Transducer	Type	Measurement Unit	Transducer Name ^{1, 5}
Engine RPM	T	R	RPM	ENGINE0, ENGINE1
Oil pressure	P	P	Pascals	ENGOILP0, ENGOILP1
Water Temperature	C	C	Celsius	ENGTEMP0, ENGTEMP1
Alternator Voltage	U	V	Volts	ALTVOLT0, ALTVOLT1
Engine Hours	G	null	Hours	ENGHRS0, ENGHRS1
Fluid Levels	V	P	Percent	FUEL0, FRESHWATER0, OIL0, LIVEWELL0, WASTEWATER0, BLACKWATER0
Fluid Levels	E	P	Percent	FUEL0, FRESHWATER0, OIL0, LIVEWELL0, WASTEWATER0, BLACKWATER0
Battery Voltage	U	V	Volts	BATVOLT0 (Start), BATVOLT1 (House)
Battery Current	I	A	Amperes	BATCURR0 (Start), BATCURR1 (House)

1. These names are hardcoded in the Engine Dashboard and mate with the output produced by the TwoCan plugin, Shipmodul gateways and other gateways that support NMEA 0183 v4.11 transducer naming such as Actisense and Maretron. If users receive data from other sources with different transducer names then the NMEA Converter plugin could be used to modify these fields.

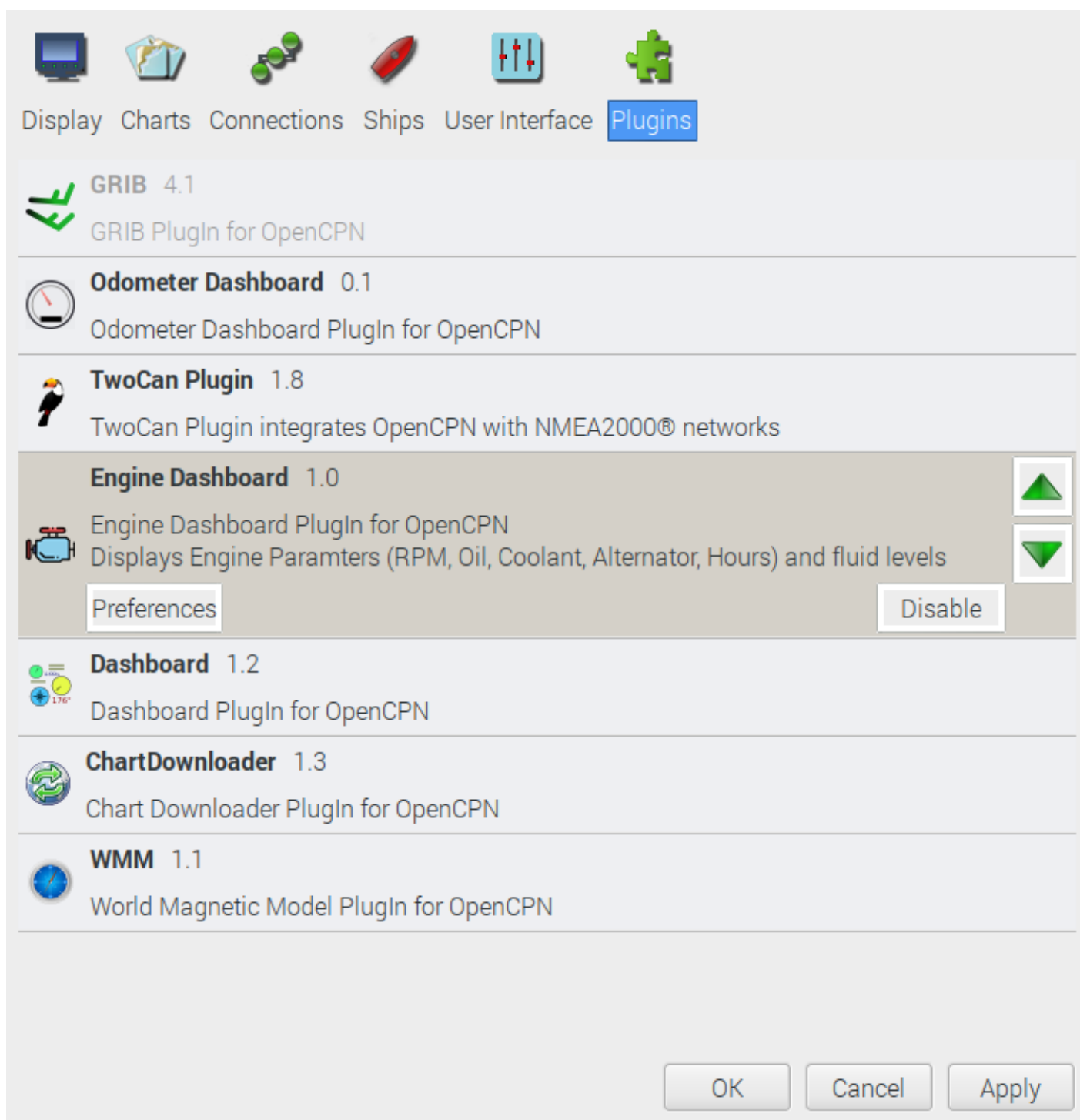
2.The use of 'H' to indicate hours is a customised use of the generic transducer type.

3.This originally deviated from the the standard volume measurement unit which is 'M' cubic metres, but is now supported by NMEA 0183 v4.11. In addition NMEA 0183 v4.11 also introduced the measurement unit 'E' using 'P' as percentage capacity.

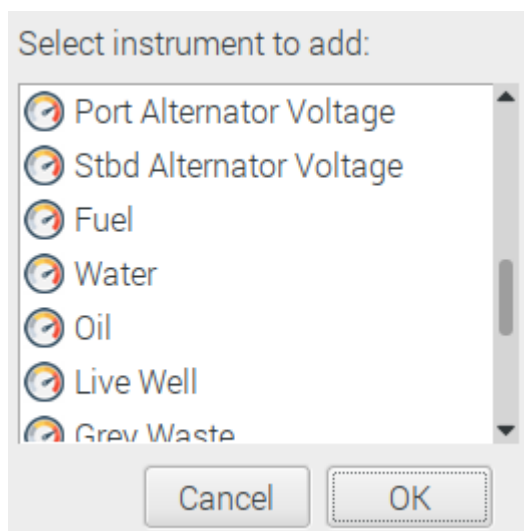
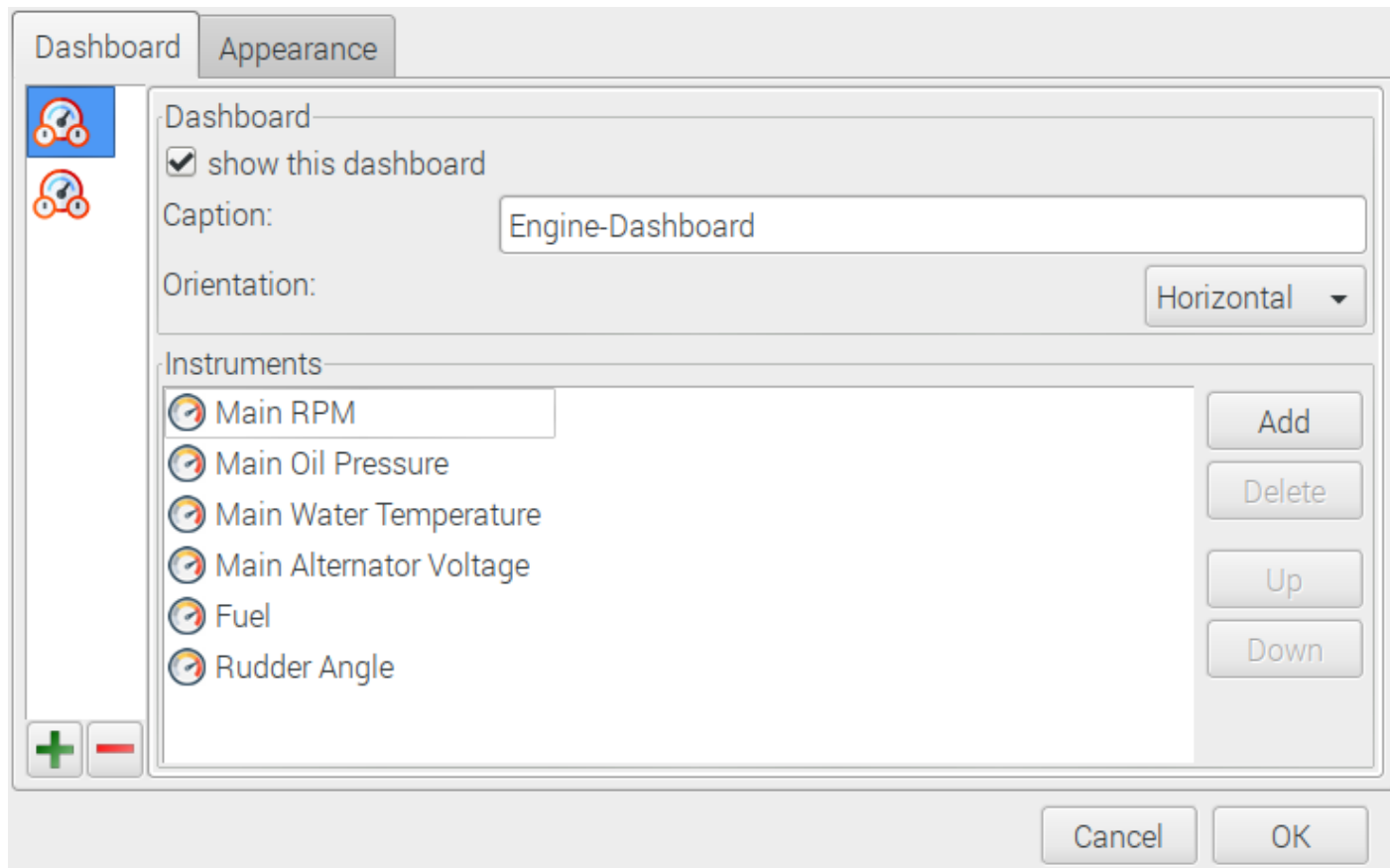
4.Note this extends the usage of the “U” (Voltage Transducer) to include current measured in Amps.

5. For single engine vessels, instance 0 (eg. ENGINE#0) refers to the main engine. For dual engine vessels instance 0 (eg. ENGINE#0) refers to the port engine and instance 1 (eg. ENGINE#1) refers to the starboard engine.

The engine dashboard is installed from the OpenCPN Preferences dialog under the Plugins tab.



Similar to the existing Dashboard and Tactics-Dashboard plugins, the Engine Dashboard display can be configured to display a number of different gauges.



Examples of NMEA 0183 XDR sentences that may be used by the engine plugin are:

TwoCan format:

```
$IIXDR,P,158300.00,P,MAIN,C,23.11,C,MAIN,U,13.86,V,MAIN*6A
```

```
$IIXDR,T,804.50,R,MAIN*54
```

```
$IIXDR,G,1.16,H,MAIN*52
```

NMEA 0183 v4.11 format:

\$IIXDR,P,100300.00,P,ENGINEOIL#0,C,85.0,C,ENGINE#0,U,26.44,V,ALTERNATOR#0*09

\$IIXDR,P,123000.00,P,ENGINEOIL#1,C,95.0,C,ENGINE#1,U,25.00,V,ALTERNATOR#1*08

\$IIXDR,G,200,,ENGINE#0,G,250,,ENGINE#1*4A

\$IIXDR,T,800.0,R,ENGINE#0*73

\$IIXDR,T,900.0,R,ENGINE#1*73

\$IIXDR,U,27.5,V,BATTERY#0,U,26.0,V,BATTERY#1*4B

\$IIXDR,E,50.00,P,FUEL#0*79

\$IIXDR,E,75.00,P,FRESHWATER#0*7B

Shipmodul format:

\$ERXDR,P,100300.00,P,ENGOILP0,C,85.0,C,ENGTEMP0,U,25.44,V,ALTVOLT0*32

\$ERXDR,G,300,,ENGHRS0*18

\$ERXDR,T,800.0,R,ENGINE0*47

\$ERXDR,U,25.4,V,BATVOLT0,I,4.5,A,BATCURR0*77

\$ERXDR,E,50.00,P,FUEL0*4D

\$ERXDR,E,75.00,P,FRESHWATER0*4F

Note that the Engine Dashboard is agnostic to the two character NMEA talkerID prefix.

If you have any problems, please post questions on the OpenCPN forum or send an email to twocanplugin@hotmail.com

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